## ATCHED GENES AND THEIR US ABSTRACT OF THE INVENTION

Invertebrate and vertebrate patched genes are provided, including the mouse and human patched genes, as well as methods for isolation of related genes, where the genes may be of different species or in the same family. Having the ability to regulate the expression of the patched gene, allows for the elucidation of embryonic development, cellular regulation associated with signal transduction by the patched gene, the identification of agonist and antagonist to signal transduction,

identification of ligands for binding to patched, isolation of the ligands, and assaying for levels of transcription and expression of the patched gene.